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Systematic literature review of primary-secondary transitions

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Systematic literature review of primary-secondary transitions: International research Abstract

A systematic literature review of international empirical research was conducted to understand the impact of primary-secondary transition on children's experiences, outcomes and protective/risk factors. The review covered the period 2008-2018 and met the gap in previous literature reviews. Using the EPPI-Centre approach, we included 96 studies in the review. Synthesis of the findings suggested that, in the main, perceived and real relationships with teachers and peers led to positive or negative experiences. Pupils and parents were primarily concerned with changes in relationships during the transition from primary to secondary school. Some studies reported that transition can also have a positive effect on opportunities for establishing new friendships. There was a decline in educational and wellbeing outcomes, and there was a link between the two. However, we cannot say with any confidence whether this impact on outcomes was as a result of the transition to secondary school, and whether it sustained over time. Protective and risk factors were related to the child and significant others in their ecosystem. There were contradictory findings about the impact of organisational and educational systems. Limited number of studies examined the differential impact of transitions on children with additional support needs. This review is the first to bring together various aspects of transitions and as a result provides some unique insights. It became clear that it is difficult to predict the impact of interactions between experiences, outcomes and factors given the gaps in existing literature. The paper concludes with recommendations for policy, practice and future research.

Key words: Systematic literature review, primary school, secondary school, transitions

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Introduction

The majority of educational systems around the world comprise a normative transition from primary (or equivalent) to secondary school (Jindal-Snape, 2010). Typically, this transition occurs around the period of pre-adolescence or adolescence with concomitant physical and psychological changes (Ng-Knight, Shelton, Riglin, McManus, Frederickson, & Rice, 2016). The majority of researchers appear to have focused on the challenges associated with transition such as the negative impact on academic grades (Hopwood, Hay, & Dymont, 2016) and psychological wellbeing (Jackson & Schulenberg, 2013); an increase in externalizing behaviours (Palmu, Närhi, & Savolainen, 2018); and less positive attitudes towards subjects (e.g., Mathematics, García, Rodríguez, Betts, Areces, & González-Castro, 2016). Authors have highlighted the particular challenges faced by children and young people considered more vulnerable during transition, such as those with additional support needs, due to heightened anxiety (Mandy et al., 2016a, b; Peters & Brooks, 2016; Makin, Hill, & Pellicano, 2017). However, some authors have challenged the emphasis on negative features of moving to secondary school and propose counterbalancing this with positive aspects, such as increased subject choices in secondary school (Jindal-Snape & Foggie, 2008; Jindal-Snape, 2016; Jindal-Snape & Cantali, 2019; Jindal-Snape, Cantali, MacGillivray & Hannah, 2019). Research in this field is seemingly inconsistent, but systematic literature reviews are lacking, which are crucial as well-rounded and robust evidence is required to enhance practice and policy.

Systematic literature reviews can provide a means to ascertain the best evidence available to inform decisions; establish how much confidence we can place on research findings; ascertain the consistency of findings across studies; address specific questions; identify gaps in our knowledge which require further investigation; and use evidence to inform policy and practice (Booth, Sutton, & Papaioannou, 2016). In endeavouring to identify and address gaps in the body of knowledge, we carried out a meta-synthesis of literature reviews (including systematic literature reviews) published over the period 2008-2018.

<INSERT TABLE 1 HERE>

Over a ten-year period, we found nine literature reviews that focussed on primary (or equivalent) to secondary school (or high school) transitions. Only three of these reviews (Hanewald, 2013; Hughes, Banks, & Terras, 2013; Pearson, Haycraft, Johnston, & Atkin, 2017) were assessed as being systematic literature reviews based on Garrard's (2016) criteria (see Table 1). Two of the researchers independently assessed this with 100% agreement, and it was finally reviewed by the third researcher. All but one of the reviews included international literature. One paper restricted the inclusion criteria to USA research, arguing that educational systems, political structures and educational philosophies vary in different countries across the world (Benner, 2011). The time periods covered by the literature reviews varied greatly. Some set a clear lower and upper year range (Benner, 2011; Hanewald, 2013); some set an upper but not a lower year limit (Pearson et al., 2017; Symonds & Galton, 2014); some did not specify the time period (Cantali, 2017; Evans, Borriello, & Field, 2018; Topping, 2011); and two papers did not stipulate the time period as one of the inclusion criteria but reported on the time range covered by included papers (Hughes et al., 2013; van Rens, Haelermans, Groot, & van den Brink, 2018). Seven reviews explicitly reported inclusion and/or exclusion criteria in the search methodology and in two papers (Cantali, 2017; Evans et al., 2018) the criteria are inferred from the focus of the review. The range and diversity of the inclusion and exclusion criteria limit our ability to draw conclusions based on a meta-synthesis of the reviews. The age range of children in included studies ranged from

10-15 years. Six of the reviews specified that included papers were peer reviewed (e.g. articles, conference proceedings). With regard to research methods, three papers incorporated inclusion or exclusion criteria (Benner, 2011; Hanewald, 2013; Hughes et al., 2013). Inclusion/exclusion criteria for research design were stipulated in three reviews (Pearson et al., 2017; Symonds & Galton, 2014; van Rens et al., 2018). Three reviews excluded papers focusing on particular groups (e.g. children with disabilities) (Hanewald, 2013; Symonds & Galton, 2014; van Rens et al., 2018); and one review excluded papers in a particular curriculum area (Hanewald, 2013). One paper focused exclusively on children with Profound and Multiple Learning Disabilities (Cantali, 2017); one review compared children with SEN and their peers (Hughes et al, 2013); three papers focused on typically developing children (Hanewald, 2013; Symonds & Galton, 2014; van Rens et al., 2018); and four reviews did not specify whether papers involving children with ASN were included or excluded (Benner, 2011; Evans et al., 2018; Pearson et al., 2017; Topping, 2011) although it could be inferred from cited studies (e.g. Evans et al., 2018).

Rationale for the current systematic literature review

We undertook a review of existing reviews. Given the relative paucity of literature reviews (n=9) and the sub-set of systematic literature reviews (n=3) on primary-secondary transition over the ten-year period 2008-2018, and the diversity of foci, inclusion/exclusion criteria and time periods, it is impossible to draw conclusions on the current state of knowledge to inform policy and practice and future directions in research. To this end, we endeavoured to carry out a wide ranging and rigorous systematic literature review, with explicit inclusion criteria, which would enhance our understanding of children's experiences of primary-secondary transitions, as well as the impact of transitions on educational and wellbeing outcomes, and contributing factors.

The following research questions were addressed; what does international literature suggest about the:

1. experiences of children and young people during their primary-secondary transition?
2. impact of the primary-secondary transition on educational and wellbeing outcomes?
3. key factors that make a positive or negative contribution to the primary-secondary transition?

Methods

Systematic Review Protocol

This review is based on the Evidence for Policy and Practice Information and Co-ordinating Centre's (EPPI-Centre, 2010) method for undertaking systematic literature reviews. The steps are outlined in Figure 1.

<INSERT FIGURE 1 HERE>

1. Scoping the review: The first step was to define clear inclusion/exclusion criteria to determine literature that should be included in the review (see Table 2). Only peer reviewed literature was included due to its perceived robustness. All methodologies were included, such as longitudinal, experimental and intervention designs.

<INSERT TABLE 2 HERE>

2. Searching for studies: The PRISMA flow diagram outlines the process of searching for studies (see Figure 2). A number of online databases were searched using the terms detailed in Table 2. These were Web of Science (WoS) (Science Citation Index Expanded, Social Sciences Citation Index, Arts & Humanities Citation Index); the Education Resources Education Centre (ERIC; British Education Index (BEI); PsycINFO; and Applied Social Sciences Index and Abstracts (ASSIA). In total, 4,635 records were retrieved for screening (see Figure 2 for details of datasets and number of hits). In addition, most relevant journals, including British Educational Research Journal, British Journal of Special Education, and American Educational Research Journal were searched. The number of additional records obtained through this process was 17, resulting in a total of 4,652 records.

<INSERT FIGURE 2 HERE>

3. Screening studies: All five authors screened the literature using the inclusion criteria (see Table 2). Cross-checking was employed at different stages to enhance the rigour of the process. In total, 4,434 records were excluded due to at least one of these five criteria (see Figure 2): lack of focus on primary-secondary transitions; not an empirical study; not published in English; a book/student dissertation; and/or a report or a discursive paper. This resulted in 181 potential publications for inclusion. Members of the research team carried out further scrutiny and cross-member checking of the remaining publications reading abstracts and full texts resulting in 96 studies (Figure 2).
4. Describing and mapping: A standard keywording (coding) strategy was employed (e.g. EPPI-Centre, 2010), to extract information about the research questions, sample and research design. A 'descriptive map' was produced to create a systematic schema of these variables and their potential links with the literature review's research questions.
5. Quality and relevance appraisal: Every paper in the above mentioned descriptive map was assessed based on an adaptation of EPPI-Centre's weight of evidence (WoE) judgments; the adaptation relates to 'its methodological relevance' to the study reported in the source paper rather than to the systematic literature review as our inclusion criteria was broader and included studies with a range of methodologies. As can be seen from Table 3, WoE score was based on the following: the study's methodological quality, its methodological relevance, and finally the topic relevance in the context of our literature review. As can be seen from Table 4, WoE was mixed and only 30 studies were found to be excellent across all three criteria. However, several had scores of excellence across more than one criteria, including 85 studies that were rated as excellent or good for topic relevance. Given the paucity of literature that was excellent across all criteria, we decided to include all 96 studies and take account of this in the synthesis stage of the process.

<INSERT TABLE 3 HERE>

<INSERT TABLE 4 HERE>

6. Synthesising study findings: We used Narrative Empirical Synthesis (EPPI-Centre, 2010) to integrate the findings from the mapping exercise. Tables synthesizing findings of the studies for each research question were produced.
7. Conclusions and recommendations: Recommendations emanating from the results of the previous stage were articulated. Perceived limitations of studies included in the review were reported. Furthermore, we have proposed a strong design for a future study into primary-secondary transitions.

Theoretical lens

We made sense of the data using Multiple and Multi-dimensional Transitions (MMT) Theory's lens (Jindal-Snape, 2012, 2016). MMT Theory emphasises that children experience simultaneous, multiple transitions. These might be taking place in multiple domains (e.g., social) and multiple contexts (e.g., school, home). Further, that children's transitions will be affected by those of significant others in their ecosystem. Instead of conceptualising the child in the centre as in Bronfenbrenner's ecological systems theory (1979), it highlights the ecosystems of the child and significant others, and how they might interact with each other over time, and lead to further changes (Jindal-Snape, 2016). If we use the analogy of Rubik's cube and see each colour as one child's dynamic ecosystem, one slight change in one dimension will trigger changes in other dimensions.

MMT theory acknowledges the complex nature of transitions and that any attempt to unravel different aspects is very difficult. Similar to Complexity Theory, MMT Theory makes no attempt to understand the transitions in a hierarchical or linear manner and transitions are acknowledged to be dynamic and continuously evolving (Eppel, 2017). The starting point of one child will be different from another child. For instance, the way an incident has an impact either positively or negatively, in the short or long term will be different. This may change their interactions with those in their environment who themselves will be influenced by external factors. Additionally, children (and significant others) are agentic beings in their own lives. Therefore, they might influence how they themselves experience transitions and those of others, and how they adapt to the ecosystem or change it leading to evolution of another layer of complexity. However well considered the transition support might be, the complex factors such as previous transition experiences, perceptions of what is to come, protective and risk factors, will lead to a different transition experience for every child which in turn would lead to different outcomes. On the other hand, the starting point of course could be the existing protective and risk factors, which will also change based on their transition experiences and outcomes. In the context of this literature review, therefore, we have presented the reported multiple transitions through the positive and negative experiences as well as resultant educational and wellbeing outcomes. The multi-dimensional aspect of the theory is presented through the narrative about significant others and environment as protective and risk factors.

Results and Discussion

A total of 96 studies were finally selected for synthesis (see Figure 2). These studies were undertaken in the following countries: UK (n=34); USA (n= 26); Australia (n=15); three each from Ireland and Norway; two each from Netherland, Canada and Israel; one each from

Finland, Germany, Italy, Peru, South Africa, Spain, one had multiple sites across Europe, one across USA and UK, and one across Australia and Denmark. The relative preponderance of studies in Western countries has implications for the generalisability of the findings to non-Western societies and the need for further research in non-Western countries.

The methodological designs overlapped in some studies; of most relevance to this review are the longitudinal studies and the number of time points the data were collected. If transition is considered to be an ongoing process (Jindal-Snape, 2016) and at the very least studies were investigating a change across primary and secondary schools, one would have expected all 96 papers to report on the use of a longitudinal design. However, only 46 papers (48%) reported on studies that used a longitudinal design; of these 14 reported on data collected at more than three time points, seven at three time points and 25 at two time points. The studies that reported on data collected more than three time points included those that used secondary datasets. Twenty-three studies that collected data at two time points collected data in the final year of primary and first year of secondary school; two collected data in the same school year. The relative lack of studies gathering data at three or more time points (21 of the 96 studies) has implications for our understanding of the experiences of children during the transition from primary to secondary school.

Six papers used an intervention design (e.g., Carmen, Waycott & Smith, 2011), four a comparison design (e.g., Dæhlen, 2017), two quasi-experimental design (e.g., Mandy, Murin, Baykaner, Staunton, Hellriegle, Anderson & Skuse, 2016) and one a randomised control trial (Farmer et al., 2011). Some studies reported on qualitative designs, including phenomenological (n=1), ethnographic (n=2) and case study (n=5) designs. The rest seemed to have used a survey design which included the use of standardised measures and some used a mixed methods design which usually involved a questionnaire and interview or focus group; with some adaptations based on children's support needs, such as the use of talking mats during interviews (Dann, 2011). This diversity in study design has implications for the conclusions which can be drawn.

As expected, most studies collected data from, or about, children. Although some studies seemed to listen to the voice of the children through interviews (n=24 papers) and focus groups (n=7 papers), most used self-reporting standardised scales and questionnaires (n=55), and school records (n=12 papers). Some studies collected data from parents and professionals (e.g., Deacy, Jennings & O'Halloran, 2015) using questionnaire, interview and/or focus group but none asked them about their own transitions (see Table 5). A handful of studies collected data from children, parents *and* professionals. Notwithstanding the perceived value in studies which have focused on the perspectives of one group, in our view it is important to gather information from a number of sources to provide triangulation.

<INSERT TABLE 5 HERE>

Sample size varied a lot (see Table 6). Thirty-one studies collected data from (or used secondary data sets) 101-1000 pupils and eighteen from 1000 plus pupils. Only two studies collected data from such a large sample of parents (100 plus) and three from professionals.

<INSERT TABLE 6 HERE>

Of the 96 studies we reviewed, only two had focussed exclusively on the positive impact of transitions, 60 on negative aspects of transitions, 25 made a reference to both negative and positive aspects of transitions (of these 15 highlighted more negative aspects than positives) and nine papers had a neutral discourse as they primarily focussed on other aspects. This is an interesting finding and worthy of further investigation.

Experiences of Children and Young People during their Primary-Secondary Transitions

A total of 43 studies reported the experiences of pupils related to their multiple transitions, although not all transitions were highlighted in the same paper and these transitions were noted primarily in the context of moving schools. As can be seen from Table 7 two broad themes emerged from the data; (i) relationships with teachers and peers, and (ii) school environment (academic, physical and psychological). As none of the reviewed studies reported on all these aspects, it is difficult to understand how they interacted with each other.

<INSERT TABLE 7 HERE>

Relationships

The positive or negative experiences were primarily expressed in the context of relationships with their teachers and peers. Pupils and parents were found to be more concerned about relationships than academic matters (e.g. Ashton, 2008), to the extent that in one study secondary schools were chosen based on existing friendships (Brewin & Statham, 2011, focused on the views of looked after children, six children interviewed twice before and after the move, and 14 children who had just moved to secondary school; importance of friendships also noted by carers and teachers). They were also the most discussed aspect in the literature.

Relationships with peers. Seven studies reported positive transition experiences; namely opportunities to make friends from a wider group of peers (Booth & Gerard, 2014; Neal & Frederickson, 2016; Symonds & Hargreaves, 2016; Vaz et al., 2014a); development of friendships with new peers (Ashton, 2008); opportunities to change their identities in the new educational setting to create new friendship groups (Davis, Ravenscroft, & Bizas, 2015; Farmer, Hamm, Leung, Lambert, & Gravelle, 2011); as well as the option to make friends with their seniors which was seen to be a marker of esteem (Symonds & Hargreaves, 2016).

On the other hand, ten studies reported negative transition experiences due to worries that pupils had about peer relationships. These negative transition experiences included leaving behind existing friends (Ashton, 2008); losing old friends due to different groupings in secondary school (Booth & Sheehan, 2008; Hammond, 2016; Jindal-Snape & Foggie, 2008); difficulties in making new friends (Dismore & Bailey, 2010; Evangelou et al., 2008; Hammond, 2016; Jindal-Snape & Foggie, 2008; Keay, Lang, & Frederickson, 2015), especially if this was already problematic for them in primary school (Evangelou et al., 2008); bullying (Booth & Sheehan, 2008; Jindal-Snape & Foggie, 2008; Keay et al., 2015; West et al., 2010); and interacting with peers in the secondary setting who would be older and taller than them (Evangelou et al., 2008; Jindal-Snape & Foggie, 2008; Rice, Frederickson, & Seymour, 2011; Tobbell & O'Donnell, 2013).

It is worth noting that most of these studies had small samples of pupils, and/or parents and professionals (Dismore & Bailey, 2010, n=8 children; Hammond, 2016, n=6 children, n=2 teachers and headteacher; Jindal-Snape & Foggie, 2008, n=9 children, n=9 parents, n=6 professionals), and therefore cannot be generalised. However, similar findings were noted across different countries and educational systems. Further, there were studies with bigger samples of up to 550 children and 569 parents (Evangelou et al., 2008) as well as multi-site studies (Booth & Sheehan, 2008; data collected in the US, n=103 and UK, n=155 children).

Relationships with teachers. Only three studies found that pupils had positive transition experiences related to teachers in secondary schools, these included clear structure and routine provided by their secondary school teachers (Neal & Frederickson, 2016; n=6 children with ASD); positive relations with secondary school teachers (Booth & Sheehan, 2008, n=258); and those teachers being dynamic, fun and knowledgeable (Cueto, Guerrero, Sugimaru, & Zevallos, 2010).

On the other hand, pupils' concerns were related to perceptions of secondary teachers being stricter (Ashton, 2008; Jindal-Snape & Foggie, 2008); having a different pedagogical approach to primary school teachers (Jindal-Snape & Foggie, 2008); negative attitudes towards the pupils (Marshall & Hargreaves, 2008); a lack of respect and trust (Tobbell & O'Donnell, 2013); and higher, and sometimes unspoken and inconsistent, expectations and rules (Jindal-Snape & Foggie, 2008; Tobbell & O'Donnell, 2013). It is important to note that some of this data were collected prior to the move and is related to perceptions of secondary school teachers rather than pupils' lived experience. Although gathering the prospective perceptions of pupils are important, their actual experiences provide useful comparative data.

As mentioned earlier, less than half of the studies collected data longitudinally, and of these only seven collected data at three time points and 14 across a number of years (e.g., West et al. 2010, data collected over 8 years, with fairly large samples of n=2586 children, n=2402 parents and n=2581 teachers at baseline, with some attrition over time). The overall lack of longitudinal studies that gathered data across a number of school years does not allow us to see if there is change in pupils' perceptions over time. Longitudinal studies are important. For example, one study found that positive experiences due to good relationships with teachers and peers were short-lived (Booth & Gerard, 2014). A potential reason for this finding might be the negative relationship between what pupils perceived the teacher support to be and their age, as reported in a Norwegian study, rather than due to the primary-secondary transition (Bru, Stornes, Munthe, & Thuen, 2010). Further, longitudinal studies will allow us to get a clearer picture of the dynamics of positive and negative experiences over time (e.g., Jindal-Snape & Cantali, 2019).

Environment of the school

A number of studies reported positive and negative transition experiences due to the school environment; i.e., physical, academic and psychological environment. The social environment has been considered through the focus on relationships in the previous section so we will focus on the other environment here.

Physical environment. Some pupils found the transition to be positive, and the specific experiences included moving between classes (Booth & Gerard, 2014; Symonds & Hargreaves, 2016); being part of an increased school population and opportunities to make more friends as mentioned above (Cueto et al., 2010; Neal & Frederickson, 2016); and the

availability of better resources in the secondary school (Cueto et al., 2010; Symonds & Hargreaves, 2016).

Whereas, negative experiences have included problems managing the larger secondary school setting (Booth & Sheehan, 2008; Evangelou et al., 2008; Hammond, 2016; West et al., 2010); moving classes with concerns about getting lost (Hannah & Topping, 2013, n=9 children with ASD and their parents; Jindal-Snape & Foggie, 2008, n=9 children, n=9 parents, n=6 professionals; Mackenzie, McMaugh, & O'Sullivan, 2012); resultant potential negative interaction with teachers and consequences (Jindal-Snape & Foggie, 2008), and travelling to secondary school (West et al., 2010). Further, those with additional support needs reported specific negative experiences, for example, related to increased noise and hustle (Dillon & Underwood, 2012, n=6 parents of children with ASD interviewed at three time points across last year of primary and first year of secondary school, and n=9 parents retrospectively) and acoustics being problematic for one child (Lightfoot & Bond, 2013, n=2 each of children, parents and teachers).

Academic aspects. There are mixed views about positive and negative experiences related to curriculum, homework and assessment during transitions to secondary school. The positive experiences included pupils in some studies enjoying challenging work in secondary school (Mackenzie et al., 2012; Symonds & Hargreaves, 2016); opportunities to learn new and interesting things (Ganeson & Erlich, 2009) for self-development (Mackenzie et al., 2012) as a result of a diverse curriculum (Neal & Frederickson, 2016); and pupils feeling that they had grown up as they were given more responsibility (Booth & Gerard, 2014; Symonds & Hargreaves, 2016). However, one study that collected data over four years cautioned that these positive attitudes were short-lived (Booth & Gerard, 2014).

Amongst negative transition experiences, examples included lack of curricular continuity and progression (Marshall & Hargreaves, 2008), increased academic difficulty and greater responsibility (Rice et al., 2011), and high volume of homework (West et al., 2010). The latter appeared to be due to inadequate communication between secondary school teachers. Pupils also expressed concerns about assessment methods (Mackenzie et al., 2012).

Psychological aspects. There was a paucity of studies that reported pupils having positive experiences during the move to secondary school (e.g., Symonds & Hargreaves, 2016). On the whole, studies have found that following the move to secondary school, pupils experience a decrease in school connectedness but this can also stabilise over time. For example, Hebron (2017) found that although school connectedness decreased immediately after the move to secondary school, it stabilised by the end of the first year for 21 typically developing children. Interestingly, the 28 children with autism spectrum conditions in their study reported an increase in school connectedness over the four time points, although their levels of school connectedness were lower than their typically developing peers. A decline in engagement and motivation was reported as evidenced by an increase in school absences (Benner & Graham, 2009), a decrease in pupils' attitudes towards learning (Deieso & Fraser, 2018), and a decline in grades (Benner & Graham, 2009).

Interestingly, a study involving a large sample of 8908 pupils reported that absences had increased across the entire sample, which may indicate that moving to secondary school results in reduced engagement with school (Benner & Wang, 2014). The authors found that this was not a feature in a large subset of their sample. They proposed four reasons for this finding, namely (i) increase in school size promoted increased attendance and (ii) presence

of teachers in middle school with professional experience and to an even greater extent in secondary schools resulted in an improvement in attendance levels. However, (iii) moving to a more racially diverse secondary school compared to their middle school, and (iv) moving to a secondary school with a lower Social Economic Status than the middle school resulted in increased absences. It should be noted that attendance cannot be a proxy for engagement and motivation, and neither can we assume that a child who is attending classes regularly is experiencing positive transitions. It is also worth noting that Makin et al. (2017) reported that students with additional support needs (n=15) had negative school experiences regardless of the type of educational establishment they moved to, suggesting that these children's needs were not met whether they attended a mainstream or special school.

This section has focused on two key elements of children's experiences of the transition to secondary school, namely relationships (peers and teachers) and the school environment (physical, academic and psychological). With regard to peer relationships, more studies focused on negative compared to positive transition experiences. Similar results were found in studies with both small and large sample sizes. Furthermore, there were similar findings in different countries involving different educational systems, strengthening the basis for conclusions which can be drawn from the research. There were very few studies (n=3) which found that pupils had positive experiences with teachers, one of which had a small sample size and involved child participants with ASD. Similarly, there was a paucity of literature (n= 4 studies) which reported on pupils' negative experiences with teachers. A gap identified in this literature review was the relative paucity of studies which gathered data on a longitudinal basis at three or more time points and over a number of years.

In relation to the school environment, there were a mixture of positive and negative experiences associated with the physical environment of the secondary school. Only four studies referred to positive aspects whereas nine studies referred to negative aspects. Some of these studies had small sample sizes, limiting the generalisability of the findings, and some focused on a particular group of pupils with ASD or their parents. There was a mixed picture with regard to academic features of the school environment with both positive and negative aspects being reported. Positive aspects were evidenced in five studies however this was countered by the findings from a longitudinal study over a four-year period (Booth & Gerard, 2014). The relatively small numbers of studies looking at academic aspects makes it difficult to draw conclusions with a measure of confidence. Few studies reported pupils having positive experiences of the school environment from a psychological perspective (e.g. school connectedness, motivation, engagement) again limiting the conclusions which can be reached.

Impact of the primary-secondary transitions on educational and wellbeing outcomes

We will now consider the impact of transition and related experiences on pupils' educational and wellbeing outcomes (Table 8).

<INSERT TABLE 8 HERE>

Impact of transitions on educational outcomes

Fourteen studies reported on the impact of transitions on educational outcomes; with some noting that it did not lead to negative impact for all children. Only McIntosh et al. (2008) reported the proportion of children affected by it, namely of 330 pupils only one third had a decrease in educational outcomes; however, this was deduced from the number of children

requiring additional support with academic outcomes. No studies mentioned the positive impact on educational outcomes, which is not surprising given the change in engagement and motivation mentioned above. Further, this could be a feature of studies that collected data immediately after the move to secondary school. During a time when both parents and children are preoccupied with building relationships, they might be assigning less importance to educational outcomes. A more thorough longitudinal design might reveal different trends.

Ten studies found a reduction in grades in at least one subject (Benner & Graham, 2009; Benner, Boyle, & Bakhtiari, 2017; Burchinal et al., 2008; Riglin, Frederickson, Shelton, & Rice, 2013; Rosenblatt & Elias, 2008; Schwerdt & West, 2011; Serbin, Stack, & Kingdon, 2013; Vasquez-Salgado & Chavira, 2014; West et al., 2010), with eight studies using examination results to measure academic outcomes (see Table 8). Three studies collected data longitudinally and had a bigger sample than others (Benner & Graham, 2009, n=1979 children, eight time points over four years; Schwerdt & West, 2011, sample taken from state-wide data over eight years; West et al., 2010, n=2586 children when in last year of primary school and n=2371 in the second year of secondary school). They reported a decline in grades. Benner and Graham, in the USA, using report cards and school records, noted that the Grade Point Average (GPA) had fallen and absence levels increased after the move to secondary school, although there was variability based on ethnicity and school characteristics. Similarly, Schwerdt and West (2011), also in the USA, using state-wide administrative data, stated that the levels of educational achievement fell after pupils started middle school and fell further when they moved to high school. In Scotland, West et al. (2010) reported a positive relationship between levels of concerns about school and completion of Standard Grades such that higher levels of concerns made it less likely they would complete these qualifications. Similar findings have been reported by other studies that had smaller sample sizes with a range of time period of data collection (Burchinal et al., 2008, n=74 but over three time points over three years; Rosenblatt & Elias, 2008, n=154, over two time points over two years; Riglin et al., 2013, n=262 at time point 1 and n=202 at time point 2, with both time points over the first year of secondary school; Serbin et al., 2013, n=127 at two time points over two years across primary and secondary school; Vasquez-Salgado & Chavira, 2014, n=92, four time points over two academic years). There was a deterioration in attitudes towards subjects, which could be partially attributed to a reduction in academic engagement (Benner et al., 2017) and motivation (Deieso & Fraser, 2018; Madjar, Cohen, & Shoval, 2018), with absences increasing in secondary school (Benner & Graham, 2008; Schwerdt & West, 2011), and the appearance of support needs linked to academic skills and difficult behaviour (McIntosh, Flannery, Sugai, Braun, & Cochrane, 2008).

Although a decline in grades, attendance and engagement was evident in these studies, findings should be interpreted cautiously given the lack of clarity about the causal relationship between transition and educational outcomes. For instance, some studies investigated factors, such as socio-economic status and gender, and concluded that they appeared to have an impact on educational outcomes and increased the prevalence of difficulties during the transition process (Benner & Graham, 2009; Benner et al., 2017; Burchinal et al., 2008; Serbin et al., 2013).

Wellbeing outcomes

Twenty studies focussed on wellbeing outcomes; including investigating the socio-emotional wellbeing of pupils (Benner et al., 2017; Fortuna, 2014), depression, anxiety and mental health (Witherspoon & Ennett, 2011). Interestingly, some of the research found that transition

resulted in a positive impact on the wellbeing outcomes of some pupils (Evangelou et al., 2008; Fortuna, 2014; Gillison et al., 2008; Poorthuis et al., 2014). For example, Gillison et al. (2008) reported that there was a positive change in Quality of Life (QoL) for 21% of 63 first year secondary school pupils from England in their sample. They also reported that QoL was related to pupils' autonomy and relatedness needs being met, but not pupils' competence (Gillison et al., 2008). They, and Evangelou et al. (2008), also from England, concluded that pupils' psychological adjustment to the process of school transition happens quite quickly. Evangelou et al. (2008), who collected survey data from 550 pupils and 569 parents, found that when pupils began secondary school, 84% of them felt ready for the move, whilst 16% did not, and that only three percent of the pupils reported being anxious after the first term in secondary school. Such findings are important as it has been reported that adaptability (one component of emotional intelligence) has the strongest relationship with educational achievement (Jordan, McRorie, & Ewing, 2010,). Interestingly, Yadav, O'Reilly and Karim (2010) reported that a mentoring intervention led to an increase in self-esteem throughout the transition process for children identified to be 'at risk'.

However, some research reported that primary-secondary transition has a negative impact, for example, one study found that pupils' behaviour and sense of school belongingness decreased over time (Witherspoon & Ennett, 2011). The latter finding is concerning given the relationship between school belonging and long-term mental health outcomes (Vaz et al., 2014a). Further, another study reported that pupils who had encountered a 'difficult' or 'somewhat difficult' school move had a trajectory of poorer social and emotional health (Waters, Lester, Wenden, & Cross, 2012). Studies involving pupils with additional support needs found that their anxiety scores were high both before and after moving to secondary school (Hannah & Topping, 2012; Neal et al., 2016) and increased levels of anxiety correlated with a reduction in school connectedness (Lofgran, Smith, & Whiting, 2015). Poorthuis et al. (2014) found that expected and perceived social acceptance significantly predicted children's self-esteem over time; children with higher levels of neuroticism reacted much more negatively to the mismatch. Further, transition practices aimed at neurotypical pupils were not found to be as effective for pupils with additional support needs (Neal et al., 2016), suggesting the need for custom-made support for pupils with additional support needs.

Links between educational and wellbeing outcomes during primary-secondary transitions

Some research has found a relationship between wellbeing and educational outcomes (Langenkamp, 2009; 2010), and that factors such as being socially integrated with peers; having good relationships with teachers and taking part in extracurricular activities can impact on academic achievement. Langenkamp suggested that these factors may act as a protective factor. It should be noted that Langenkamp used the same US secondary data set for the two papers, i.e., National Longitudinal Study of Adolescent Health (Add Health) and its education component, the Adolescent Health and Academic Achievement (AHAA). Despite its large sample size (questionnaire with n=90,118, interviews in first wave with over 20,000 and in second wave of nearly 15,000) the major weakness is that the data were collected from 1994 to 1996. Similarly, West et al.'s (2010) study over an eight-year period, involving data collection at four time points, found that around three quarters of pupils reported some problems during the move to secondary school. West et al. found that pupils who had lower ability and self-esteem had less successful *academic* transitions. Further, pupils who were worried; had been bullied in primary school; had worries about and problems with peer relationships, including making friends, went on to experience poorer *peer* transitions. It was not clear whether the multiple transitions of the pupils had interacted positively or negatively. However, the authors also reported that poorer transitions at age 15,

correlated with longer term educational and wellbeing outcomes. Unfortunately, as noted as a limitation by the authors, they did not gather data about pupils' concerns when they were in the final year of primary school; they instead asked them in the second year of secondary school to retrospectively report their transition experiences. An additional limitation, similar to the Langenkamp studies, is that they first collected data in 1994 and it is possible that practices may have changed over the past 25 years. Further, data were collected in, and around, only one, though large, city in Scotland.

This section focused on the second research question, namely the impact of the primary-secondary transition on educational and well-being outcomes. None of the 14 studies which investigated the impact of transition on educational outcomes reported a positive effect. The majority of the studies (n=10) found a reduction in grades in at least one subject. A mixture of methods was used to measure academic outcomes (examination results, report cards and school records) which limits the comparability of the findings. Furthermore, different research designs were employed. We would argue that evidence from the three studies which employed longitudinal designs and had larger sample sizes strengthens the conclusion that there is a negative relationship between primary-secondary transition and educational outcomes. What is less clear are the factors underpinning this association and the interplay between those factors. Possible factors identified in the reviewed literature include pupils' concerns about school, attitudes towards subjects, academic engagement, motivation, socio-economic status and gender.

In relation to wellbeing outcomes, there appears to be a mixed picture, with some studies (n=7) finding that transition was associated with a negative impact on pupils' wellbeing and others (n=4) reporting a positive impact. A number of contributory factors have been reported including pupils' autonomy, relatedness needs, adaptability, and sense of school belonging. As noted for educational outcomes, the relative contribution of these factors and the interplay between them is less clear. Only two studies involved pupils with ASN, both of which were conducted in the UK limiting the generalisability to other countries. Finally, the two studies which investigated the relationship between educational and wellbeing outcomes were based on data gathered 25 years ago impacting on the present day relevance of the findings.

Key factors that make a positive or negative contribution to the primary-secondary transition

The child and their ecosystem interact with each other to create protective and risk factors, in general, and during transitions in particular. These are dynamic factors and will change across time and ecosystems. The authors highlighted the following factors: those related to pupils, peers, family, teachers, and environmental and school factors. We will consider each factor, highlighting the protective and risk aspects (Table 9).

INSERT TABLE 9 HERE

Factors related to pupils

Reviewed literature explored the following pupil related protective factors that facilitate smooth transitions; ability to control negative emotions (Bailey & Baines, 2012; Ganeson & Ehrich, 2009; St Clair-Thompson et al., 2017); ability to solve problems to deal with various social and contextual factors (Bailey & Baines, 2012); ability to develop positive and enduring peer relationships (Benner et al., 2017; Hammond, 2016; Symonds & Hargreaves, 2016); self-confidence (Davis et al. 2015; Symonds & Hargreaves, 2016); enjoyment of, and

connectedness to, school (Symonds & Hargreaves, 2016); and good attendance and increased academic engagement (Benner & Wang, 2014). However, it is worth noting that these are not within-child factors and it is the significant others in the environment who give these cues as well as providing opportunities through which these can be developed. Additionally, it is crucial that pupils view the move to secondary school in a positive manner as literature suggests a relationship between positive expectations of transition and the actual experience of transition (Waters, Lester, & Cross, 2014a); however it is important that there is a match between expectation and reality as mismatch was found to have a negative impact on self-esteem (Poorthuis et al., 2014)

Additional support needs (e.g., due to disability, English as additional language, socio-economic disadvantage) have been seen to be risk factors during primary-secondary transitions. Only five studies compared typically developing pupils with peers who had an additional support need (Bloyce & Frederickson, 2012; Foley et al., 2016; Neal et al., 2016; Vaz et al., 2014a, b). Vaz et al. (2014a) reported that social disadvantage had a detrimental effect on academic competence and mental health functioning and argued that pupils from these backgrounds therefore need a higher level of support than their peers. Foley et al. (2016), Neal et al. (2016) and Vaz et al. (2014b) focussed on pupils with disabilities and reported that they were more vulnerable to bullying (Foley et al. 2016) and had higher levels of secondary school anxiety (Neal et al., 2016), than their peers. Vaz et al. (2014b) reported that the benefits of school belongingness over time were evident in all groups of pupils, and it was important to foster it at an early age by primary schools (Vaz et al. (2015) and that it is therefore important to identify children who need support to maintain positive mental health, at primary school as well as those who begin to require this at secondary school. Overall, these studies recommend that pupils with disabilities require a more personalised approach and longer period of transition support than their typically developing peers.

Bloyce and Frederickson's quantitative study reported on levels of school concern prior to and following an intervention to support the transition of pupils with a range of additional support needs; 351 pupils received the intervention, of whom 34 (9.7%) were eligible for free school meals (FSM), 36 (10.2%) who had EAL, and 234 (67.2%) who were registered as requiring Special Educational Needs (SEN). A 'benchmark' group of 106 pupils did not receive the intervention; six (5.6%) had EAL and 23 (22.2%) were on the SEN register. The intervention was equally successful for pupils with eligibility for FSM and disabilities as their peers, but it was not as successful for pupils with EAL and 'did not close the gap' (p.15) between them and their non-EAL peers.

Factors related to peers

Peer relationships were seen to be a fundamental influence on positive or negative outcomes. Other important influences reported in the research were peer acceptance, with both the number and quality of friendships prior to leaving primary school, being reported as making substantial contributions to the predicted positive or negative adjustments after the move (Kingery et al., 2011; Waters et al., 2014b). Positive peer relationships acted as a protective factor to cope with challenges related to the move (Hammond, 2016; Kingery et al., 2011; Symonds & Hargreaves, 2016; Tso & Strnadova, 2017), and there was evidence that they contributed to academic achievement (Kingery et al., 2011). However, Langenkamp (2010), found that for most pupils social relationships in primary school protected them against negative educational outcomes after the move to secondary school; but not for lower achieving primary school pupils. Further, Langenkamp (2009), based on the same datasets, reported that pupils who moved with some of their classmates but not all were able to retain

their existing friendships as well as developing new ones after the move. These pupils also had higher academic outcomes. However, these friendship patterns were not apparent for pupils who moved either in a whole class cohort or with only one or two classmates.

Several studies have reported difficulties related to forming relationships with peers during transitions, including Hammond (2016), who noted pupils' concerns about losing or falling out with existing peers, making new friends and adapting to a new peer group, and pupils with SEN worrying about losing status as they were used to developing friendships with younger pupils in primary school (Scanlon, Barnes-Holmes, McEntegart, Desmond, & Vahey, 2016). Less bullying in secondary schools, unsurprisingly, was found by Farmer et al. (2011) to also be a positive factor. Learning what it is to be a secondary school pupil and preparation through online interaction with secondary school pupils when in the final year of primary school was perceived to be helpful (Maher, 2010).

Factors related to family

Research suggests that family relationships may bear more importance during transitions than in-school relationships and factors (Benner & Graham, 2009; Waters et al., 2014b), such as consistent and ongoing support from parents (Smith, Akos, & Lim, 2008; Waters et al., 2014b); stable home environment (Hammond, 2016); responsive and engaged parents (Hammond, 2016); brother/sister who is already studying in their new school (Mackenzie et al., 2012), and parenting which promotes the independence and autonomy of their child (Duineveld, Parker, Ryan, Ciarrochi, & Salmela-Aro, 2017). Duineveld et al. (2017) reported that supporting autonomy had a positive influence on the child's self-esteem and, conversely, a negative impact on depressive symptoms during primary-secondary transitions. Waters et al.'s (2014b) Australian study reported that pupils with a close relationship to their parents were more likely to have a relatively easy transition. Frey, Ruchkin, Martin and Schwab-Stone (2009), based on data from a Social and Health Attachment Survey with a sample of pupils (n=652) in the USA, reported that parents' support and supervision led to a higher level of academic motivation and less negative behaviour. They argue that this parental support and supervision could also lead to a reduction in anxiety about the move. This study, however, only included female pupils and so it is possible that the impact of this parental control style on male pupils may be different.

More importantly, Davis et al. (2015) reported that where parents were involved more in the transition process, this had a positive impact on the child's transition. They reported that schools which used parent-led or a partnership approach between parents and teachers were more likely to find that parents were able to enhance their child's transition and facilitate the inclusion of children with disabilities. It should be noted, however, that not every professional (total sample n=578 for questionnaire and n=173 for focus groups) who participated in their EU research agreed with this parent-led or partnership approach, with some preferring a professional-led and others a child-led approach. Teachers in Lubbers, Repetto and McGorray (2008) found the lack of parental and other stakeholder participation to be a barrier in providing effective transition practice. They found that 27% of teachers and transition contacts saw stakeholder participation to be the number one effective practice and 11% of transition contacts noted that pupil involvement in transition planning was an effective practice. However, Strndova and Cumming (2014) found that active pupil involvement and interagency collaboration was missing from transition practices of schools in their sample of 75 primary and secondary schools from Australia. Another of their studies found that the lack of pupils in transition meetings was of concern according to 14 parents and 13 teachers of children with ID/ASD (Strndova, Cumming, & Danker, 2016).

Conversely, this potentially protective factor could easily become a risk factor, such as a negative impact being a lack of autonomy at home (Hammond, 2016), and negative experiences being shared by siblings and cousins, resulting in worry for the pupil who is moving to secondary school (Jindal-Snape & Foggie, 2008).

Factors related to teachers

Teachers and their role during transitions came under a lot of scrutiny in the reviewed literature. As can be expected, based on their study in Italy, Longobardi, Prino, Marengo and Settanni (2016) found that the relationships between pupils and teachers were both a protective and risk factor; the pupil-teacher relationship can lead to both academic achievement and conduct problems; it was the strongest predictor of wellbeing for pupils with no SEN in secondary school but not for their deaf peers (Wolters, Knoors, Cillessen, & Verhoe, 2012, although there were differences based on gender and whether the school was mainstream or special school for deaf pupils). Most importantly, the pupils' perceptions of teacher support were found to lead to pupils viewing the climate of the school positively as well as enhancing their academic motivation (Frey et al., 2009) and facilitating integration into secondary school (Ganeson & Ehrich, 2009).

When teachers were supportive (Smith et al., 2008), and/or caring (Hammond, 2016), there was a good teacher-pupil bond (Langenkamp, 2009), willing to let go of power and promoted child- and parent-led transition processes (Davis et al., 2015), the transition experience was positive. Academically, Madjar and Chohat (2017) reported that where teachers focused on encouragement of learning and understanding, individual pupil's achievements, and responded to mistakes with patience, this enhanced pupils' self-efficacy and led to a successful move, whereas a focus on high scores, peer achievement comparisons and intolerance of mistakes, did not. Additionally, teachers who were able to make learning engaging and fun (Ganeson & Ehrich, 2009) facilitated a positive transition experience; with Symonds and Hargreaves (2016) finding that enjoyment was a crucial aspect that underpinned engagement of pupils not only with their teachers but also their studies.

However, based on data from England, Symonds and Hargreaves (2016) argue that teachers are largely accountable for the decline in positive attitudes towards secondary school as they found that pupils' concerns were about the amount of homework they were given instead of its difficulty level. They believed this was due to lack of coordination and communication among secondary school teachers. The latter was also the case in an Australian study where the competing demands of homework and assignments from several teachers was a difficulty (Ganeson & Ehrich, 2009).

Further, differences and discontinuity in assessment (Smith et al., 2008) and disciplinary practices (Jindal-Snape & Foggie, 2008; Smith et al., 2008); organisational discontinuities and discontinuities in teaching styles (Cueto et al., 2010); and the added burden of becoming used to managing several teachers' expectations in secondary school, compared with only one in primary school, were reported to be risk factors leading to a negative transition experience.

School and educational systems

There were only two international comparative studies (Booth & Sheehan, 2008; Nielsen et al., 2017) that investigated the differences in educational systems. Further, the existing literature revealed little discussion regarding the characteristics of educational systems which

may have supported or hindered the transition experience. However, in the following sub-sections an attempt has been made to unpack the findings of different studies to understand what impact educational systems can have. These have been discussed under six subheadings; age at transition, size of school, organisational model of the school: independent vs public schools: organisational model of the school: through-school vs physical move; organisational model of the school: feeder schools and clusters, and environment and climate of the school.

Age at transition. Only Arens, Yeung, Craven, Watermann and Hasselhorn (2013) looked at the impact of age at transition. Their study was conducted in Germany where children move to secondary school after 4th grade. Their study involved two cohorts, those in the class before 4th grade (n=318) and those in 5th grade (n=307). The mean age of the first group was 9.67 (SD 0.60), and the mean age of the second group was 10.75 (SD 0.59). They found lower self-esteem in pupils who were in the 5th grade, suggesting that their academic and social experiences could be responsible. On this basis, they concluded that the decline in Grade 5 pupils' self-concept was not due to their age at transition; but due to environmental effects. We should, however, be cautious about the findings and their interpretation as they studied two different cohorts rather than undertaking a longitudinal study.

Size of school. Pupils' educational and wellbeing outcomes after transition were influenced by the size of the primary and secondary schools; the increase in the size of secondary school was seen to lead to lower academic grades and an increase in absences (Benner & Graham, 2009). Mid-range sized schools (375–975 pupils) were found to have better outcomes than those in larger schools (Vaz et al., 2014b). However, Nielsen et al. (2017) in Australia found advantages for school connectedness and socio-economic outcomes of moving to a bigger secondary school, as this provided greater options to make friends. Similarly, in the US, Benner and Wang (2014) found that it was more likely for pupils to have a decline in attendance where they attended small middle and high schools, whereas this was not the case for pupils attending larger schools which were also ethnically diverse. It should be noted that alongside the increase in size of school additional factors, such as the ethnicity and socio-economic status of the child and teachers' years of experience, may have also been influential.

Organisational model of the school: Independent vs public schools. Vaz et al. (2014b), in Australia, hypothesised that academic competence when related to attending an independent school may be attributed to factors such as better quality and range of resources, positive climate of the school and less behavioural issues. They reported that those who attended independent primary schools scored very high on academic competence and very low in mental health functioning after the move.

Organisational model of the school: Through-school vs physical move. Three models were identified in the review that focussed on the organisational characteristics of schools. These were schools that had a through-school model where pupils stayed in the same school for the entire school career, those that required pupils to physically move to a different school and those that had middle schools.

Vaz et al. (2014b) studied academic competence of three groups of pupils, those who moved from primary to secondary school, those who studied at a through-school which had a middle school, and those who studied at a through-school which did not have a middle school. They found that pupils with the highest post-transition academic competence scores were those

who had attended the third type, a through-school without middle school. However, there was a different outcome in terms of behaviour and emotional symptoms in Nielsen et al.'s (2017) study which compared pupils in Australia and Denmark. In both countries they collected data from three age groups each, namely those who were 11 to 12 years old and would be in the school year before they would move to secondary school in Australia, those who were 13 to 14 years and would be experiencing transitions to secondary school, and those who were 15 years old who would have been in the second year of secondary school in Australia. Pupils from Denmark were from through-schools. In Australia, the increase in age did not lead to any statistically significant differences in pupils' feelings of school connectedness, behavioural issues or emotional symptoms; whereas school connectedness decreased and behavioural issues and emotional symptoms increased with age in Denmark. Their study, therefore, concluded that Australian adolescents gained benefits such as independence in line with their developmental stage and having the opportunity to make friends with a larger group of peers when they moved to the bigger secondary school. However, Danish pupils stayed with the same peer group, including those with whom they might not have had positive relations. They concluded that, in both educational systems, feelings of lack of connectedness with the school resulted in social and emotional problems.

Weiss and Baker-Smith (2010) found evidence in the US that pupils who attended middle school had worse outcomes, including higher numbers of pupils failing as compared to those who studied in K-8 through-schools. However, they concluded that as K-8 pupils are more likely to go to elite secondary schools, this difference in academic attainment might not be related to the organisational model. Farmer et al. (2011), also in the US, found that pupils reported less bullying and better social relationships when they moved to a middle school.

In another study in the US, Felmlee et al. (2018, n=14,462) found that pupils in through-schools had better levels of educational and social outcomes compared to pupils who moved schools. However, Madjar et al.'s (2018, n=128) study from Israel reported that children who were moving school had higher academic and social motivation as compared to those who studied at through-schools. They concluded that this might be due to increased awareness of the need to socialise and do well academically. However, the latter seemed to stem from a desire to show off their academic ability rather than motivation for deep learning.

Organisational model of the school: Feeder schools and clusters. The impact of organisational models where pupils from one primary go to the secondary school and those where several primaries feed into one secondary have been compared. Although Langenkamp (2010) reported that those pupils who moved to a secondary school where several primary schools fed in had less chance of failing, Felmlee et al. (2018) reported that they faced a greater academic cost in this model to the extent that these effects could be seen throughout their secondary school career. Similarly, Temkin, Gest, Osgood, Feinberg and Moody (2018) reported that transition from multiple feeder schools to one secondary school led to a decline in friendship stability and an increase in social distance between pupils.

Environment and climate of the school. A few studies investigated environmental dimensions. In countries where education is devolved to local authorities (LAs), such as in England, it was found that different LAs had different transition practices (Evangelou et al., 2008). These differences in transition practices included differences in the frequency and start of discussions between schools, with affluent schools providing more transition related events. Similarly, Makin et al. (2017) argued that for autistic children transition experiences were influenced by the system-level rather than individual-level factors.

In their longitudinal study, Booth and Sheehan (2008) investigated the impact of school climate in the UK and the US. Due to the differences in the school climate, UK pupils reported feeling significantly safer than the US pupils. However, in both countries, transition from a relatively smaller primary to a larger secondary school was reported to be stressful. Further, positive relationships in school predicted higher school satisfaction.

This section considered a multiplicity of factors which contribute to the primary-secondary transition outcomes. A range of protective factors related to pupils were identified in the literature. However, we would argue that these should not be construed as within-child factors given the inter-relationship between a child and their ecosystem. Having an ASN appeared to be a risk factor for pupils. However, there appeared to be a paucity of research comparing typically developing children with peers with ASN; therefore it is difficult to make that assertion. On a positive note, there was a range of settings for these studies, namely UK (n=2), Ireland (n=1) and Australia (n=2). The review identified the key role of peers as offering both risk and protective factors. A number of studies provided evidence of the significant role of family members (parents, siblings) during the transition process. Similarly, a number of papers investigated the role of teachers during transition. Again, the relationship between pupils and teachers was found to act as both a risk and protective factor. Finally, the role of school and educational systems was considered. There was a paucity of research (n=2 studies) looking at differences in educational systems and associated factors which support or inhibit the transition process. The role of factors such as age at transition, size of school, organisational model of the school (independent vs public school), organisational model of the school (through-school vs physical move), organisational model of the school (feeder schools and clusters), and the environment and school climate were considered. We would argue that the conclusions which can be drawn from research into school factors are limited due to the small number of studies, contradictory findings, and different educational contexts.

Conclusions

This international review is the first attempt to bring together pupils' transition experiences, educational and wellbeing outcomes, and protective and risk factors. It is also the first paper to bring together findings from different educational systems and models of schools. Therefore, it provides unique insights into primary-secondary transitions. However, none of the studies looked at all these aspects and this literature review could only pull *some* of the pieces of the jigsaw together to further our understanding of primary-secondary transitions. It is also important to highlight that it is difficult to separate these multiple and multi-dimensional aspects of transitions; and that they will interact and have an impact on each other over time. The current literature review suggested that there are several eco-systemic factors that can facilitate or act as barriers to smooth transitions. This complexity of eco-systems suggests that this is not a straightforward transition to research. Although the literature focused on the impact of significant others on facilitating or hindering children's successful transitions, it did not focus on what transitions significant others were experiencing themselves and further what transitions are triggered for them due to the child's transitions or vice versa. Therefore, a major limitation of the current literature is that it tries to understand children's transitions without understanding what is happening for significant others, even in their closest ecosystems. Additionally, community was not considered as a factor in the studies reviewed. Further, there was variability in research designs and their robustness (n=49 assessed as excellent) with only 46 longitudinal studies with 25 collecting

data at two time points; three papers that used longitudinal data collected over more than 3 years were based on data collected in 1990s. Longitudinal studies collecting data over several school years (in the present time) are essential if we want to get a full insight into the reasons behind varying transition experiences, as well as to understand how the eco-systems interact with each other to either support or hinder successful transition.

Some studies in this literature review have provided fairly robust evidence which suggests that there is a decline in educational and wellbeing outcomes, motivation to learn and school engagement, attitudes towards subjects, and school attendance. The evidence of negative influences on wellbeing outcomes included high levels of anxiety and depression which led to a decline in socio-emotional health. However, a cause and effect relationship is missing, i.e., we cannot say with any confidence whether this impact was due to primary-secondary school transitions rather than the protective/risk factors and/or transition experiences. Further, a clear relationship could not be established between pupils' educational and wellbeing outcomes. This is also complicated by the lack of indication of the proportion of pupils experiencing this decline in educational and/or wellbeing. Similarly, due to the lack of robust long-term longitudinal studies, it is difficult to ascertain the long-term impact of transitions, or whether any of these impacts are maintained over time. Therefore, the impact of transitions and link between educational and wellbeing outcomes is inconclusive.

Although investigated in a small number of studies, school belongingness and school connectedness were found to be important for the success of the primary-secondary transition. There was evidence that this declined after the transition to secondary, although there was encouraging evidence that it was possible to influence pupils' mental health and school engagement positively through the promotion of school belongingness and connectedness in primary school, and it was possible to create a strong feeling of belongingness and connectedness in secondary school.

Pupils with additional support needs might have specific needs during transitions. There was evidence, for instance, of some pupils having heightened anxiety, with this increasing when there was uncertainty, leading to problems with attainment and mental health. However, one small scale study found that pupils with ASD preferred the structured environment of secondary school. Further, pupils who were emotionally intelligent, skilled at problem solving and had stable friendships, were better able to adapt and experience successful transitions.

There is evidence to suggest that good relationships between the child, their peers and teachers led to better educational and wellbeing outcomes due to better integration which helped increase the resilience of the child during transitions. Parental involvement improved educational outcomes and also facilitated successful transitions, with parent-led transition processes, along with those where there was a strong parent-teacher partnership approach, being more effective in supporting *all* pupils. However, there was evidence that parents were not always involved by schools in the planning and preparation for their child's transitions.

The current literature review also found pedagogical and expectation discontinuities between the primary and secondary school teachers. It was also reported that pupils believed that there was a lack of communication between their secondary school teachers as they were assigned homework by several teachers for the same time scale. The difficulty level of the homework, however, was less of a problem with some pupils expressing a preference for challenging homework.

This transition involves adapting to the larger and physically different environment of the secondary school. Further, different educational systems were seen to have an impact on transition experiences. However, overall, there were inconclusive findings relating to the impact of: school size; age at transition; whether the school was through or non-through; and single or several primary schools feeding into one secondary school.

Recommendations for policy and practice

Based on the findings of the literature review, several recommendations for policy and practice can be proposed. As sense of belongingness and school connectedness were found to have an impact on attainment of educational and wellbeing outcomes, it is important that the transition practices of schools support its development. Pupils need to be supported to develop strong peer networks through planned activities *and* be provided with opportunities enabling *them* to form secure attachments with school-based professionals in primary and secondary schools. An ongoing dialogue between, and within, the schools is required to ensure *pedagogical and curricular continuity*, with clear communication with regard to assignments. Further, problem-based learning *as well as* socio-emotional skills development should be prioritised. Transition processes need to be tailored to meet the diverse needs of pupils with ASN, being mindful that transition can in itself be a trigger for an additional support need for some pupils not previously identified as having ASN. It is important that there is sound parent-teacher partnership during planning and preparation for the child's transition. Further, it is important that the discourse about primary-secondary transitions changes internationally by highlighting positive experiences and outcomes.

Recommendations for future research

Forty six of the reviewed studies indicated that they had used a longitudinal design, and of these 25 collected data at the end of primary and the first few months of secondary school, with only 21 studies using a longitudinal design that extended beyond this time period. Therefore, it is difficult to know whether the effects are sustained or what the longer-term impact of transition is. It is recommended that future studies use a longitudinal design that commences in the penultimate year of primary school, and at least follows pupils through the completion of their second year at secondary school. Further, data should be collected several times during each school year. This needs to be balanced with the consideration of possible research fatigue for participants.

Few studies explored the positive impact and experience of transition, with most reporting negative findings. In order to give a balanced picture of secondary school transition, future studies should ask pupils what they are 'looking forward to', along with, what they might be 'worried about.' Furthermore, no study investigated all the factors that had a positive or negative impact on the transition experience, making it difficult to understand at the current time how these aspects might interact.

We identified a number of gaps in the existing literature, namely only five of 96 papers investigated the differential impact of ASN; only a small number of studies reported on the impact of the educational systems; a few studies comprehensively included data regarding pupil demographics, the school models and localities; and there was a lack of studies that collected data from pupils and all other stakeholders. All of these methodological gaps warrant further investigation. Therefore, data should be collected (i) across demographics including rural/urban schools, through-schools/non-through-schools, small and larger primary schools and secondary schools, single primary school / multiple primary schools moving to

one secondary school, different socio-economic geographical areas, samples including typically developing children and those with additional support needs; (ii) samples including significant others such as parents, allied educational and health professionals, siblings, teachers and communities in line with the MMT Theory keeping in mind the co-evolution within infinite, complex and adaptive systems.

Limitations

Despite cross-checks being undertaken by the five authors, it is possible that some relevant papers were omitted during the search or were rejected during one of the later stages. Further, some papers were included in the review despite a lower WoE to ensure a sizeable pool of papers to understand the complex and multi-dimensional research questions.

Further, we could not present a comprehensive MMT narrative as the context of transitions reported in the reviewed literature was children's school transitions with no account of out of school transitions or significant others' transitions.

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